Rhode Island Infrastructure Bank Efficient Buildings Fund

Detailed Guidance on Developing an Energy Management Plan

Frequently Asked Questions

1. Why do we need to develop an energy management plan?

An energy management plan is an important tool for entities that manage facilities for several reasons. First, the plan is an opportunity to think through a set of goals. These goals set by your entity (municipality, school, water, wastewater or quasi state agency) to achieve energy reduction. It outlines your entity's strategy by specifying actions you plan to take. You or others can then return to the plan to check in and make sure the entity is on track.

Second, simply going through the process of developing an energy management plan is a learning opportunity for you to better understand your energy use and expenditures. Choosing actions for reducing your energy consumption allows you to think critically about what is feasible for your entity and how you can save money on energy expenses.

Third, the plan works as a commitment device. Going through the process of choosing an energy reduction goal will help essential municipal staff get on the same page and commit to the action items. Municipal staff can periodically check in with the plan to gauge their progress towards achieving the energy reduction goal. This plan is meant to be helpful for municipalities and celebrated by the community!

2. Is there an example of an EMP I can use as a reference?

Yes, we've posted a link to Barrington's EMP, which is extremely comprehensive.
http://www.energy.ri.gov/documents/RIEBF/Barrington_EnergyPlan.pdf
We are not expecting this level of detail from all applicants. The intent of showcasing Barrington's EMP is to show the extent of potential that you can achieve with your EMP. An EMP that follows the EMP template is sufficient to meet the requirements of your EBF loan, though we certainly encourage you to go above and beyond! You should adjust your EMP to meet your needs and abilities, and reflect the perspective and goals of your entity.

3. How can we adapt our Comprehensive Plan to this document?

Each entity is required by the state to file a Comprehensive Plan with the Rhode Island Division of Planning. There are two areas of overlap between the Comprehensive Plan and the EMP requirements. This overlap is intentional, so that municipalities may use prior discussions and planning regarding energy to inform their actions moving forward. The EMP goes a step beyond the Comprehensive Plan, and can satisfy Comprehensive Plan requirements. The following Comprehensive Plan requirements correlate to the EMP:

Comprehensive Plan Requirement 9.1: Goals that embody the state's goals for energy and policies to support each goal

a. efficient use of energy, energy efficient transportation options, development of sustainable resources.
   (Overlaps Action 1.1, 1.3, and 1.7)
b. supporting and encouraging energy efficiency and renewable energy generation
   (Overlaps Actions 1.2, 1.7, 2.3, and 2.4)

c. exemplifying desired future condition (energy security, cost-effectiveness, sustainability) (Overlaps Actions 1.5, 2.1, 2.2, 2.6,2.7, and 2.8)

Comp Plan Requirement 9.2B: Zoning policies and siting standards that address for renewable energy production facilities. (Overlaps Action 1.8)

4. Should the EMP cover just the property discussed in our EBF application?

No. An EMP is a plan that is inclusive of all facilities and all the initiatives your entity is planning to take over time. Applying for EBF funding is a strategy within that plan.

5. RI Office of Energy Resources posted a template online. Do we have to use their template? What are our other options? What are the minimum requirements and what's optional to include?

The RI Office of Energy Resources template is not required. Another option would be to make an original document that addresses the requirements from the EBF application or hire a consulting firm to design an energy management plan including at least the minimum requirements. Minimum requirements are listed on the EMP template and on the EBF application. If you decide to deviate from the template, URI is still available to provide support. In fact, we encourage municipalities to adapt the template to meet their specific and unique needs! This document does is not have to be as comprehensive as the example energy management plan from the town of Barrington, RI. Barrington's EMP is a great example of what the EMP can be, and you could like to include in your EMP that you would like to develop a more comprehensive/higher level document in the future. Below is the General Guidance for required and optional components of the Energy Management Plan.

Requirement 1 - Energy Reduction Goal: Performance goals drive energy management activities and promote continuous improvement. Setting clear and measurable goals is critical for understanding intended results, developing effective strategies, and reaping financial gains. An energy reduction goal is a statement that guides decision-making. The energy reduction goal should be expressed as a percent reduction in energy usage of all facilities under the entity's control below a baseline year(s) by a certain year in the future. Refer to EPA Energy Star's Guidelines for Energy Management for help with goalsetting.

Requirement 2 - Implementation Plan: The implementation plan should outline steps that the applicant will take over the next few years to more thoroughly assess opportunities, implement energy efficiency projects and achieve its energy reduction goals. The EMP – and the implementation plan – are meant to be a living document that should be revisited and revised as needed. The implementation plan should combine findings from the baseline analysis with what is known about the condition and operations of the facilities (based on recent energy audits and/or anecdotal information) to identify potential opportunities for energy savings. The plan might also include the projects proposed in this application, noting how far they will go toward achieving the entity's energy reduction goal and using the project proposal to outline what resources may be needed (e.g. funds, staff, timing, etc.) to implement future projects. Then the plan should address what steps will be taken to ensure that, when new energy savings opportunities are identified, projects continue to get implemented. Other plan components might include:

Optional Components:

- A vision or policy statement prioritizing sustainable energy ideals and actions
- A greenhouse gas emissions reduction goal

- A renewable energy goal
- A reporting process for tracking progress (e.g. identify specific metrics for measuring success, reporting frequency, who will be responsible for gathering and reporting metrics, etc.)
- Potential funding sources and financing mechanisms for future projects
- An individual or team that will be responsible for driving these efforts
- A protocol for continuing to monitor energy consumption and maintain equipment efficiency
- Guidelines for continuous improvement
- Building occupant education

6. What is URI's role in helping municipalities and providing feedback?

URI's role is to provide resources, guidance, and assistance. We are familiar with EMPs and can pass along our expertise to you. Our team can discuss goals and actions with you to ensure you are choosing feasible actions and attainable yet challenging goals. Our team can assist with interpreting your energy data. Our team can provide resources if you prefer to learn on your own. Let us know how we can help you!

URI will not write any section of your EMP. One of the goals in having you write your EMP is for you to learn about your entity's energy use. There may be sections of the EMP that are challenging to write, but this struggle will help you understand your energy use. We are here for support the entire way through!

7. Who is the audience for the EMP?

The EMP is meant to serve you, the applicant. Think about those who would read the EMP, ranging from a facilities manager, planner, energy manager, sustainability director, engaged citizen, efficiency contractor, consultant, mayor, town administrator, or someone else concerned about energy savings and renewable energy. The plan should be written in plain language so it is accessible to any potential audience, and should include sufficient detail to help steer the entity towards energy savings. Eventually the EMP can be used as a commitment device towards achieving your entity's energy goals.

Developing Goals

1. How do I come up with an energy reduction goal?

An energy reduction goal is a statement that guides city, town, school or quasi State agency system decision-making. *This goal describes a percent reduction in energy consumption (below a baseline year (s)) within a determined time period.* The process towards developing a successful energy reduction goal is as follows:

a) State an objective — Have a clear, measurable objective that reflects the organization's commitment, culture and priorities.
b) Establish accountability — Institute a chain-of-command, define roles in the organization, and provide the authority for personnel to implement the energy management plan.
c) Ensure continuous improvement — Include provisions for evaluating and updating the policy to reflect changing needs and priorities.
d) Promote goals — provide a context for setting performance goals by linking energy goals to overall financial and environmental goals of the organization.

2. How do I develop a greenhouse gas (GHG) emissions goal?

In the same way you developed an energy reduction goal. Make it reasonable! Evaluate not only the percentage reduction, but the deadline for achieving it. You can start with an established town or state greenhouse gas goal for building energy use.

Baseline Narrative and Progress to Date

1. How do I calculate my energy savings percentage so far?

Energy savings is important to calculate at the end of your project to determine the success of your project. Your energy use and expenditure before and after the project implementation is needed to calculate the overall energy saved. However, be aware that there are many other factors that will affect your energy use, and therefore your calculated energy savings (e.g. weather, schedule changes, other projects).

2. How do I develop a baseline narrative and how do I use our energy data in doing so?

Tracking prior and current energy use is essential to understanding the costs and benefits of various energy-saving strategies and evaluating the energy reductions of actions taken. The first step is to obtain energy data for at least one year for all energy accounts (for example by using the EBF customized report template).

- ✓ Facilities with the highest energy consumption and/or expenditure
- ✓ Facilities with the highest energy use intensity and/or cost per SQFT
- ✓ Facilities that have a noticeable increase or decrease in energy consumption and/or expenditure over time
- ✓ Potential reasons why facilities are showing certain data trends

Here are some helpful tips for developing your baseline (below). General and detailed guidance is also available at http://www.energy.ri.gov/RIEBF/

- Working with data is easiest when you can graph it. You may want to graph energy use over time or make a bar chart of annual energy use by building.
- When adding energy use from electric, gas, propane, and/or oil accounts, make sure your energy is converted to kBTU before you add.
    - For electricity: to convert from kWh to kBTU, multiply by 3.412.
    - For gas: to convert from therms to kBTU, multiply by 100.
    - For oil: to convert from gallons to kBTU, multiply by 138.
    - For propane: to convert from gallons to kBTU, multiply by 91.
- To calculate annual energy use per building, add up all energy use for all accounts connected to that building.
- To calculate annual energy use per square foot for each building, divide annual energy use per building by the square footage of that building.
- One way to figure out if energy data is weird or missing is to look at data for the highest energy-using buildings and the lowest energy-using buildings. If those buildings are surprising to you, or if you see anything unusual (e.g. a drop to zero energy use for a couple months) then you should look at the underlying energy data on Portfolio Manager (or other energy-tracking platform) and reconcile those data with past energy bills.

3. How do I know what actions to choose?

In choosing an action, you first need to understand which action would be most appropriate for your entity. Revisit your entity's mission statement, comprehensive plan, or other useful documents to help you understand which actions are realistic and achievable. For example, you could look to prior energy audits for suggested projects, piggyback on scheduled end-of-life equipment or construction/renovation plans, or talk to your neighboring entities to get ideas. These actions do not have to be a hard commitment. They are more of a guide for you and your colleagues towards implementing a model of energy use awareness. Choose whichever actions you see as best fit for your entity.

Strategy 1 Action Items - Guidance

Action 1.1 **– Identify and implement energy efficiency opportunities.**
Identify obvious opportunities to reduce energy use. A technical assessment or energy audit can provide good insight into the opportunities, but even without an audit, you might be able to identify energy-inefficient equipment, processes, or systems that could provide an energy efficiency opportunity. Periodic assessment will help you continue to identify opportunities.

Action 1.2 **– Identify and implement renewable energy opportunities.**
The most common sources of renewable energy include solar photovoltaic panels and wind turbines. You should first think about whether there is space to install renewable energy generation, and then assess the generation potential in that location. For example, if you have a roof that could hold the weight of solar panels, the potential for electricity generation would then depend on factors including the amount of sun exposure, the direction the roof faces, and the angle of the roof, among others. As with Action 1.1, consulting with a professional may help provide necessary insight.

Action 1.3 **– Replace end-of-life vehicles with alternative fuel or high-efficiency vehicles.**
If you are already in need of replacing fleet vehicles (or will be in the next several years), consider a transition to vehicles with high fuel economy or that use alternative fuel sources. A cost-benefit analysis can help determine which vehicle options make the most sense for your particular use.

Action 1.4 **– Establish guidelines for continuous improvement of energy performance.**
Your entity will take on the mindset of continuously looking for new opportunities for energy efficiency or renewable technology improvements. Once your entity implement projects, you will continue to make further improvements to reduce your energy usage, for example, by identifying new opportunities or technologies. ENERGY STAR developed a roadmap for continuous improvement: https://www.energystar.gov/buildings/about-us/how-can-we-help-you/build-energy-program/guidelines

Action 1.5 **– Establish an energy revolving fund.**
A revolving loan fund is a pool of money that can be borrowed from for energy projects. Once the energy projects are repaid, for example through energy savings, the pool of money is replenished and more loans can be taken out. Additional guidance is here: http://energy.gov/eere/slsc/revolving-loan-funds

Action 1.6 **– Identify potential funding sources and financing mechanisms for future projects.**
If you have energy efficiency or renewable energy projects that you'd like to undertake but cannot at this time, you can take action in researching future funding sources. Here are some examples of funding options:

INTERNAL FUNDING OPTIONS

Capital and Operating Budget Allocations

The most significant advantage of allocating funds from the capital or operating budgets is that there are no interest rate payments. Using life-cycle cost accounting or cash flow analyses to quantify the lower net capital and future operating costs can help local governments improve the chances of incorporating energy efficiency into their limited capital budgets. Allocations used for efficiency upgrades could be funded through expected savings.

Internal and Revolving Loan Funds
The option of internal and revolving loan funds can be sourced from budget allocations, grants, or other sources. Funding could come from department reserves or savings, the municipal treasurers' investment accounts, or sustainable endowments. Ideally, the loan proprietors should balance a low interest rate instead to fund administrative costs.

EXTERNAL FUNDING OPTIONS
Revolving Funds
Revolving loan funds (RLFs) use a source of capital (typically offered by a state or local government) to make direct loans to borrowers for energy efficiency and renewable energy projects. As these loans are repaid, the proceeds flow back into the fund and become available for more loans.

Revolving loan funds can be managed internally by government agencies or by a third-party financial institution that uses the loan capital offered by the agencies to make loans on their behalf. In either case, the capital provider has the ability to set the loan terms and conditions. Revolving Loan Funds (RLFs) can be used for individual product installations or whole building upgrades in commercial, residential, industrial, public and non-profit buildings.

Incentives and Rebates
A rebate is a direct transfer of funds with no repayment obligation. It is designed to reduce the overall cost of purchasing an energy efficiency or renewable energy measure or upgrade. Rebates can be used for single produce or technology-focused energy efficiency measures and will take the form of price reductions, refunds, or credits. They can be claimed at the point of sale, after verification of installation, or at some future date. Many communities already have existing energy efficiency rebate programs through local or regional utilities. States and local governments should seek to build on these existing programs through partnerships with their utility companies.

Public Bonds
The Clean Energy Strategies for Local Governments document also indicates "Public Bonds" as well-suited for energy efficiency projects because of bonds' ability to recover their costs through energy savings over the life of the project.

Grants and Contributions
One-time grants and contributions can be used to finance a project in its entirety, or as seed capital to establish a self-funding program. A number of private foundations are showing increasing interest in mission-related investments with grants and low interest long-term loans. Another key criterion to consider is whether or not the project or initiative is replicable. Programs that are already in the beginning stages will show significantly more promise than those that are not.

Action 1.7 **– Explore opportunities to reduce energy demand.**
In addition to a standard generation charge on your electric bill (cost per kilowatt hour), sine customers also incur demand charges. See National Grid's explanation of demand here: https://www9.nationalgridus.com/narragansett/business/rates/5_demand_faq.asp. It may be possible to reduce costs by reducing your overall demand, or eliminating costly spikes in demand. A spike in electricity demand could occur, for example, if an entire large office of employees turns on their computers at the same time, or if a kitchen facility must power-cycle their refrigeration units at the same time. This sharp demand can result in unwanted charges on your electricity bills, but can be avoided by staggering or otherwise planning when equipment comes online.

Action 1.8 **– Adopt zoning policies and siting standards to encourage renewable energy development.** Your entity may decide to encourage renewable energy development both on municipal land and for your residents. If doing so is right for your entity, a good place to start is by adopting zoning policies and siting standards. The RI Office of Energy Resources provides some guidance on siting land-based wind turbines: http://www.energy.ri.gov/renewable/landwind/. The American Planning Association provides helpful resources regarding solar energy development: https://www.planning.org/research/solar/faq.htm.

Strategy 2 Action Items - Guidance

Action 2.1 **– Hire an energy manager**
An energy manager is one person who is responsible for understanding and reducing energy consumption. Having one person spearhead this effort will ensure that your entity will continue to decrease energy use and save money over time. (In contrast, if no one is explicitly in charge of energy then the proverbial ball is easy to drop.) An energy manager is also a point person for anyone in the community to talk to about energy-related concerns and ideas. The energy manager can foster public relations and tout the achievements of the entity (either by press release or tweet!). Of course with tight budgets it may not be possible to hire a full time employee. Alternatives include hiring someone part-time or in coordination with another entity, adding these job duties to an existing job, hiring a low-cost intern (like a URI Energy Fellow!), or have a volunteer resident help out.

Action 2.2 **– Establish an energy team**
Similar to Action 2.1, having a team of people responsible for achieving energy reduction goals can facilitate energy reductions. Consider including members of the public on your energy team, who may be motivated to help out with projects. You may also choose to hire a consultant or develop an ongoing working relationship with your utility provider to better understand opportunities.

Action 2.3 **– Require Building Operator Certification training for all facility managers**
The Building Operator Certification is the leading training and certification program for facility directors, building operators, and buildings owners. This training teaches ways to make buildings more comfortable, efficient, and environmentally friendly. Here is more information about this program: http://www.theboc.info/

Action 2.4 **– Educate building occupants on energy conservation**
In addition to energy efficiency improvements and renewable energy projects, an entity can reduce energy consumption through behavioral changes. EnergyStar provides some energy-saving tips for the workplace here: https://www.energystar.gov/buildings/about-us/how-can-we-help-you/communicate/energy-star-communications-toolkit/bring-your-green-work-1 as well as an Employee Education Kit here: https://www.energystar.gov/buildings/about-us/how-can-we-help-you/communicate/energy-star-communications-toolkit/bring-your-green-work-0 Education is one way to make occupants aware of the importance of energy conservation within your entity, and let them know specifically how they can help the entity achieve its goals. We encourage you to be creative as well. For example, hold an ongoing competition among offices to maintain low energy use (e.g. turn off lights and computer monitors, avoid space heaters, use blinds to prevent sunlight from heating the office on a hot day, refrain from using the HVAC when windows are open, etc.) Or, you could consider delivering building specific “energy bills” with a peer comparison, similar to household energy bills.

Action 2.5 **– Establish a system for on-going monitoring of energy usage and expenditure data**
Measuring your energy consumption and expenditure is the key to managing it. Putting a system in place for continuously measuring energy usage and expenditure will make energy management easier and more efficient. An example of energy monitoring system is ENERGY STAR Portfolio Manager.

Action 2.6 **– Establish a reporting process for tracking progress toward energy goals**
Reporting progress can keep your energy goals on a successful track. In your report, you can report specific metrics for measuring success, reporting frequency, and who will be responsible for gathering

and reporting metrics. Ensure that the objectives of your projects are being met by monitoring and measuring progress regularly.

Metrics for measuring success:

- Status Summary – Give high-level summary of progress made toward energy goals.
- Project Progress – Progress made in the last reporting period. Would include key milestones met, key deliverables completed, budget and schedule tacking.
- Planned Progress – Identify any items to be completed during next reporting period.
- Risks/Issues – Any identified risks and issues along with the energy management plan to deal with specific risks/issues.
- Resources – It is always good to identify the current resourcing level on the project in the status report so that all stakeholders have an appreciation for the work level and resource requirements.
- Schedule –identify the current project schedule to complete, has the work completed so far been done on schedule, and explain any variances.

Action 2.7 **– Utilize negotiated third-party (competitive) energy supplier contracts**

There are two components in your buildings getting the energy needed: supply and distribution. You are not obligated to use National Grid as a supplier – you may shop around for better rates for electricity and natural gas. The transition to a third party is seamless and National Grid will continue to distribute your energy. National Grid can also integrate your delivery and third party supplier costs into one bill – we recommend that you make this request for easier energy tracking. Understanding which third party energy provider offers the most beneficial contract for your needs can be a complex process. Manage contract negotiations from beginning to end, and periodically monitor your usage and your relationship with the third party, anticipating and adjusting for future needs and opportunities.

- The RI Public Utilities Commission outlines more information about third-party energy suppliers here http://www.ripuc.ri.gov/utilityinfo/electric.html
- Competitive Energy Supply Q&A http://www.ripuc.org/utilityinfo/electric/compfaq.html
- Brochure for considering another electric supplier http://www.ripuc.org/utilityinfo/electric/faq1a.pdf

Action 2.8 **– Establish Environmentally Preferable Purchasing policy**

Environmentally Preferable Purchasing (EPP), also known as “Green Purchasing”, is the act of purchasing products/services whose environmental impacts have been considered and found to be less damaging to the environment and human health when compared to competing products/services. An example policy might sound like: *Purchase products that minimize environmental impacts, toxics, pollution, and hazards to worker and community safety to the greatest extent practicable*. Addition resources to help develop an Environmentally Preferable Purchasing are listed here:

- Categorized list of EPP web links for paper products, office and school supplies, fuel efficient automobiles, etc. http://www.stopwaste.org/preventing-waste/green-purchasing-web-links
- Purchasing Guides and Resources http://www.stopwaste.org/preventing-waste/fact-sheets-guides-and-model-policy/guides
- Green Purchasing FAQ http://www.stopwaste.org/preventing-waste/green-purchasing-frequently-asked-questions